PREPARING OUR COMMUNITY FOR A WILDLAND FIRE DISASTER

EXECUTIVE ANALYSIS OF FIRE SERVICE OPERATIONS IN EMERGENCY MANAGEMENT

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An applied research project submitted to the National Fire Academy
as part of the Executive Fire Officer Program

August 1999

ABSTRACT

This research project analyzed the factors involved with the assessment, mitigation and preparedness efforts of the La Habra Heights Fire Department, to address the threat of wildland urban interface fires within and around the City of La Habra Heights.

The problem is the Fire Chief of the La Habra Heights Fire Department was directed by both the City Manager and the City Council to mitigate the brush and weed hazards, plus organize and train the fire department staff, with an emphasis on addressing the threat of urban interface fires.

The purpose of this applied research project was to evaluate the improvements and changes implemented by the Fire Chief, and to determine if they were meeting the goals and objectives set by the City Manager and City Council. This project utilized a combination of evaluative, historical, action and descriptive research methodology.

For an informed decision to be made, the following research questions were developed to facilitate this process:

1. What geographic areas of the City of La Habra Heights face the greatest threat from wildland fires?
2. Are there mitigative efforts that can be taken to reduce the threat of wildland fires within the City?
3. What wildland fire training classes need to be provided to all La Habra Heights firefighters?
4. Are there infrastructure improvements which can be implemented to reduce the overall threat to the community from wildland fires?

A survey was developed and administered to the La Habra Heights Fire Department Chief Officers, Captains, Lieutenants, and Engineers, many of which have attended classes themselves, at the National Fire Academy over the last two years. The survey attempted to collect data on this sampling of local fire personnel officers.

A total of 37 surveys were distributed, and 35 returned, indicating a 94.59 percent return rate. The EFOP Research Guideline Table indicated a 35 out of 37 sample count was required in order to assure a 95% confidence level.

A literature review was undertaken to study past wildfire experiences, and to determine other programs utilized throughout the United States to address similar disasters or wildland-urban interface fire hazards effecting the City of La Habra Heights. This review indicated that there are a significant number of programs and/or experiences of other fire departments and governmental agencies around the country who have faced these same problems and have mitigated their risks through implementation of hazard reduction programs or specialized training classes.

Research results showed there were significantly a greater number of advantages, with few if any disadvantages to the use of these programs by the La Habra Heights Fire Department, providing an increased level of protection to the citizens, with additional safety or training benefits to our firefighters.

The recommendations of this research project included; (a) continued mitigation of all weed and brush hazards within the City, (b) implementation of the Wildland/Urban/Rural Structure Triage System, (c) the provision of specialized training programs, (d) research program and equipment funding source alternatives, and (e) seek the continued support of the City Manager and Council in changes being made, implement new programs, and purchase additional equipment or apparatus.

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INTRODUCTION

The La Habra Heights Fire Department was established in 1942, because of a then lack of fire protection provided by the Los Angeles County Fire Department to this unincorporated area, during wildland fires. Over the last 75 years, many high value homes were built on the sides or tops of the City's brush covered canyons. Ditzel (1986) pointed out the same identical problem was faced by the Los Angeles City Fire Department, when more than 500 homes were destroyed in the Bel Air/Brentwood area of the City, by a Santa Ana wind driven brush fire in 1961.

The La Habra Heights Fire Department is very unique in that it is one of the few (three) remaining fire departments in the Los Angeles County area that still utilizes "volunteer firefighters", and can afford to experiment with new ideas that larger agencies can not. These same volunteers enable our City to staff equipment around the clock, at a higher level of staffing than a neighboring city with 10 times the population, yet the same land area, and having an all paid department.

This research project utilized a combination of evaluative, historical, action and descriptive methodology to address the threat of wildland urban interface fires to the City of La Habra Heights. For an informed decision to be made, the following research questions needed to be answered:

1. What geographic areas of the City of La Habra Heights face the greatest threat from wildland fires?
2. Are there mitigative efforts that can be taken to reduce the threat of wildland fires within the City?
3. What wildland fire training classes need to be provided to all La Habra Heights firefighters?
4. Are there infrastructure improvements which can be implemented to reduce the overall threat to the community from wildland fires?

BACKGROUND AND SIGNIFICANCE

For the purpose of this research project, the City of La Habra Heights, California is a rural "bedroom" community, with brush covered hills, about seven square miles in size, serving a population of approximately 7,000 people. The city is located in the southeast portion of Los Angeles County, just east of the City of Whittier, (see Figure 1).

A volunteer fire company was first established in this community in 1942. This was the result of long response times to local brush fires, by the Los Angeles County Fire Department (LACoFD). For years, the La Habra Heights Volunteer Fire Department (LHHFD), was the only non-incorporated fire department in the County of Los Angeles, not part of the LACoFD. When the City of La Habra Heights incorporated in 1978, the volunteer fire company became a City Department.

The threat of wildland fires in this urban interface setting, has always posed the greatest risk to our community. It should be noted however, that in the entire 57 year history of the LHHFD, only one home was ever loss to a brush fire, leaving both city and fire officials with the impression that the City is living on barrowed time. Risk and Capability Assessments were both major focuses of the Executive Analysis of Fire Service Operations In Emergency Management course at the National Fire Academy, in May of 1999.

The La Habra Heights Fire Department is currently staffed by; 35 paid (full & part time) officers, 100 constant manning program (CMP) firefighters, 75 resident volunteer fire personnel, 25 dispatchers, and approximately 15 resident fire explorers, responding to approximately 500 emergency incidents a year. The La Habra Heights Fire Department operates 17 pieces of apparatus, from 6 stations, (List 1), and also serves as a regional fire training academy for area volunteer firefighters.

The Los Angeles County Sheriff's Office serves as our police department, however, the fire department operates its own central fire dispatch and emergency operations center (EOC) from Fire Station #1. On February 4, 1999, a new enhanced 9-1-1 system, with a recording system, modern radio equipment, and a computerized dispatch run card and GIS file network went on line.

Six years ago, following the 1993 Malibu and Laguna Beach Fires, a Disaster Preparedness Commission was established by the La Habra Heights City Council, with 11 appointed members from the general public. The Fire Chief serves as the committees primary advisor and provides staff support, but can not vote. Over the last two years, this committee has conducted several disaster exercises, and is working to revise the City's Operational Disaster Plan, which will include; a Wildland Fire Operations Annex, plus an Animal Evacuation Annex, which would be used during brush fires.

In November of 1998, the La Habra Heights Fire Department took delivery of a State owned "type 2 structure fire engine", as part of the State's Fire Mutual Aid program (OES). The Fire Chief, has also, as part of an effort to address City Council concerns, purchased two "type 3 wildland fire engines", both four wheel drive, from the California Department of Forestry (CDF).

Two years ago, a time study was conducted to assure every residence in the City of La Habra Heights was within four (4) minutes travel time of a City Fire Station. Units are assigned to stations to meet area needs, ie: water tenders for areas with poor hydrant supply. A joint agency fire station (LHHFD #3) with the Los Angeles County Fire Department is also in a planning or as some call it, a discussion stage, and may become a reality within the next 10 years, which would be a first in Los Angeles County.

LIST 1

LA HABRA HEIGHTS FIRE DEPT.

STATION LOCATIONS

STATION #	STATION LOCATION AND ASSIGNMENTS
1	Headquarters – 1245 N. Hacienda Blvd. Engine #1, Engine #11, Squad #1, Brush #11, & Attack #8 (Engine # 10 & Patrol #10 – Parade use Only)
2	1700 Blk of La Flore Drive (1287 West Road) Brush #2
3	2025 Deep Canyon Road Engine #3, and Water Tender #3
4	1625 Cypress Light & Air #4
5	1400 Bella Vista Engine #5
6	200 Blk of Canada Sombre (Oil Well Site #3) Attack #6

LITERATURE REVIEW

LIVING WITH DISASTER IN OUR BACKYARDS

The fastest-growing fire problem in the United States is the potential of a wildland /urban interface fire (Cowardin, 1992, p. 28).

In this present day of biological warfare, terrorism, natural disasters, and chemical spills, local governments and their managers must be prepared for any kind of crisis (Berry, 1999, p. 4).

Community leaders and emergency officials are charged with the safety and well-being of their citizens, including preparedness for local disasters (Wade, 1999, p. 44).

Los Angeles has seen fires, floods, and earthquakes, and as is appropriate in a town known for sequels, it will see them all again (Hayden, 1999, p. 59).

The La Habra Heights area too has faced many major incidents over the years, including; wildland fires, significant damage from the 1987 Whittier Narrows Earthquake, a chlorine gas leak, and even stood up to El Nino rain storms with their flooding and other related damage. LaBard (1987) noted in her historical article; an airplane even crash in La Habra Heights in 1964, plus in 1975, a combination landslide and explosion, destroyed a local hillside home.

The City of La Habra Heights is located in one of the worst wildland fire danger zones in the world, with its chaparral brush covered hills, and dry weather.

In a fire prevention plan, logical goals must be determined. How much reductions of man-caused wildfires can be logically expected? What will be the goal of the unit? (Gaylor, 1974, p. 6).

A Risk Assessment of the City of La Habra Heights, as part of the City's Disaster Operations Plan, shows that the hazard of wildland fires, posed the greatest risk to our City, (Appendix "A").

NATURAL, & ENVIRONMENTAL FACTORS

In the past 98 years there have been 23 El Ninos and 15 La Ninas, (according to NOAA's definitions). Of the century's ten most powerful El Ninos, four—the four strongest--have occurred since 1980 (Suplee, 1999, p. 94).

When an El Nino year, producing lots of rain, causing heavy brush growth, is followed by a very dry La Nina year, the fire seasons in southern California can be devastating. Garvey (1998) even noted that the year after an El Nino year, there is an 85% increase in wildland fires, also, there is a 293% increase in the acres that are burned. She also noted then, that 1998 should be a slow fire season in California, (which it was), but that 1999 will be a terrible year for fire (which is yet to come).

In reviewing fire season histories for Los Angeles County (CA) during my lifetime, so was the case, accruing in; 1969/1970, 1977/1978, 1982/1983, 1992/1993, and maybe now in 1998/1999, (see APPENDIX "E"). The only factor needed to turn our brush covered hills into one big fireball, are strong, northeast, Santa Ana winds.

During a 13 day period, in September of 1970, over a half million (500,000) acres burned in the southern California counties of; Los Angeles, San Diego, Orange and Riverside. More than a 1,000 structures in San Diego County, were destroyed during the 1970 Laguna Fire alone. Green (1983) noted that in 1969, which was an El Nino year, the La Habra area experienced the worst rain fall record in 30 years. LeBard (1987) then documented one of the major fires of September 1970, a La Nina year, striking the La Habra Heights community.

Major brush fires such a those which struck Southern California in late September (1970) cannot be extinguished by man. All firemen can do is fight such blazes defensively, saving as many structures as you can, until the fires burn themselves out (Fried, 1970, p. 8-10).

Carter (1998) wrote that from tragedy, improvements are always made to the fire service, and life safety issues addressed. He was also quick to point out however, that we must re-learn the same lessons every generation or so.

The introduction of human-made fuels has drastically altered the suppression considerations on many of today's wildland fires (Clayton, 1987, p. 78).

Backes (1976) noted that wildland fires have always been a part of American history. On the same day as the Chicago Fire in 1871, the Peshtigo Fire killed 1,152 people, injured thousands, and devastated 17 Wisconsin towns.

Jerome (1976), a LHHFD Fire Chief during the early 1970's pointed out that in order for our department to meet the needs of the community, we must provide our firefighters both tough and effective training classes, with a major emphasis on wildland fire control.

ADDRESSING THE PROBLEMS

The time to find out what to do when there is a disaster is before it strikes, not when everyone is scrambling around responding to incidents (Walker, 1994, p. 42).

McDonald (1998) noted that the fire chief's of today are experienced and well more educated, which helps prepare them for challenges they may face during their careers. Training has to be of the highest importance. Garvey (1998) also noted the value of training in preparing for a severe wildland fire season. Reese (1999) added that we should not only train all our firefighters, but also our managers, and work to retain experienced people.

Streger (1999) identified communications problems as the most common weakness noted in virtually every disaster after-action report. The local government manager is a key decisionmaker during crises, and his or her input is essential in formulating the communications plan before a crises strikes (Berry, 1999, p 5.).

Patterson (1999) noted how modern Internet technology has even become a part of recent times, with major wildland fires even having their own Web-Sites.

While the front-line responders have seen major increases in their response capabilities, the command level usually still operates under the premise that as an incident grows in complexity, incident command is simply passed up the chain of command, (Miller, 1999, p. 48).

This situation stresses the need for automatic aid agreements and a good working relationship between all fire agencies, utilizing unified incident commands.

Good clearance around each home, public education and disaster planning are important factors in preparing for a wildland fire in a rural community.

The Fire Risk Survey program has proved to be an effective tool in the fight against interface fires. The survey form not only rates the homeowners' risk, but educates them on their options for preventing wildland fire losses, (Wrightson, 1994,- - p. 22).

O'Conner (1998) notes that people building new homes in forested or wildland areas, should construct their houses utilizing fire resistive materials.

Franklin (1998) suggested the idea of sheltering in place during a catastrophic wildland as a method to avoid crowded streets and exposing people to the dangers of the approaching fire, as a proven disaster preparedness tool.

Aleshire (1976) stressed the importance, if time permits, for preparedness steps to be taken by firefighters, in an effort to save structures (homes) threatened by approaching wildland fires.

Cowardin (1992) outlined the use of "structure triage" for wildland urban interface fires, utilizing Wildland Urban Rural Structural Triage (WURST), (see - - Appendix D). WURST enables firefighters a method to determine wheather to defend a home from a wildland fire, or if it is to unsafe, to let it burn.

PROCEDURES

Definition of Terms

OES. California State Office of Emergency Services (was Civil Defense), which coordinates disasters and major incidents at a state-wide level, including; wildland fires, hazardous material incident responses, the state Urban Search & Rescue Teams (USAR) for FEMA, and disaster related training, including the EMI field classes. Since 1953, OES has purchased over 250 fire engines,(rated Type 2 Engines), then distributed them to Fire Departments state-wide to be used for mutual aid responses to disasters or other major incidents.

NFA. National Fire Academy, established in 1979, in Emmitsburg, Maryland, is the site of the former St. Joseph College. The NFA is part of the National Emergency Training Center (NETC), which is shared with the Emergency Management Institute (EMI). The Federal Emergency Management Agency, (FEMA), is the parent agency to both the NFA and EMI, as well as the United States Fire Administration.

EFOP. Executive Fire Officer Program at the NFA.

LHHFD. La Habra Heights Fire Department

CDF. California Department of Forestry and Fire Protection, which not only coordinates the suppression of watershed fires, state-wide, but now also oversees the State Fire Marshal's Office, and the State Fire Training Program, which includes the NFA Field Classes and VIP Courses. CDF is the largest Fire Department in the United States.

CMP. Constant Manning Program. Provides the City of La Habra Heights with 24 hour a day coverage of LHHFD Fire Station #1 with a combination of 12 paid and volunteer firefighters, staffing an Engine, a Rescue Squad, and a Truck Company. Five other LHHFD fire stations are staffed by volunteer firefighters.

USFS. United States Forest Service, a division of the USDA.

.Determination of Feasibility

To determine if the programs implemented, training presented, or changes made were a viable alternative to the present status quo, the Fire Chief: first, estimated cost that each factor that would have an effect on the department money wise, plus the organizational effect on both the paid and volunteer firefighters; second, the time involved for each item to be implemented or presented; third, was the new program or change being made, in alignment with the City Council and City Managers' direction; and lastly, identifying the proper people within the organization to deliver these programs or changes.

Research Population

The intent of this research was to analyze and evaluate the various program and/or organizational changes made to the La Habra Heights Fire Department (LHHFD) over the last two years (1998 - 1999), in it's efforts to address the wildland/urban interface problem faced by the City. A survey was created in order to analyze data from all LHHFD fire officers which included; the Assistant Chief, Division Chiefs, Battalion Chiefs, Captains, Lieutenants and Engineers, and appears in this paper as Appendix B. A total of 37 surveys were distributed with a total of 35 being returned by these officers.

Research Instrument

The research was evaluative research, with descriptive research applied as a tool to gather data on the various questions regarding issues experienced by department officers, and changes implemented by the Fire Chief. Historical and action research methodologies were also utilized in this project. In addition, this data was compiled in order to evaluate the advantages and disadvantages, with an analysis to determine the benefits of programs, training, and changes implemented by our department. This research instrument asked a total of eight (8) questions, with questions asked to elicited specific responses to determine if the programs implemented, training presented, or changes being made were addressing the direction set by the City Council and that of the City Manager.

Data Tabulation

Raw data was collected after receipt of completed questionnaires and complied into the categories correlated by each question number. A compilation of data was then completed categorizing like data sets, with the end results displayed in Appendix C.

Limitations of Data

In performing an analysis of the questionnaires, it was observed that not all questions were completed. This led to some incomplete surveys being tabulated.

The survey distributed was not a random sample nor was it representative of any department nationally or of similar demographics. Additionally, some survey questions were open ended and allowed for multitude of respondent answers, specifically the listing of advantages and/or disadvantage.

It can be concluded, that most of the responses given, listing the advantages and/or disadvantages of programs implemented, training presented, or changes made, in aneffort to address the City's wildland/urban interface fire problem, were the opinions of the persons completing the surveys.

RESULTS

The literature review found many examples which documented similar wildland/urban interface fire problems faced by the City of La Habra Heights. These examples also showed how other fire agencies were able to address their threats through planning, mitigation, preparedness or training. All of these factors could be both related to each a specific research problem, and/or to those items presented at the NFA's Executive Analysis of Fire Service Operations In Emergency Management class.

The evaluative and historical analysis represented by the results of the survey questionnaire, reflected the options of LHHFD officers.

Four (4) specific research problems questions were identified. It is important to note, that these ARP questions are the glue/thread that holds this entire report together. The results of each question and the data collected are presented here:

Research Question #1. What geographic areas of the City of La Habra Heights face the greatest threat from wildland fires?

Question #1 Raw Data: Surveys returned indicated that the officers felt the following areas of La Habra Heights faced the greatest threat from wildland fires;

1. Powder Canyon area, and all of it's valleys and ridges.
2. The valley below West Skyline Road, on the north facing side.
3. South facing canyons below Lamat, Pueblo Crest, Dorothea, and Cypress.
4. Solejar south of West Road, and all south side streets, south of West Road.

Research Question #2. Are there mitigative efforts that can be taken to reduce the threat of wildland fires within the City?

Question #2 Raw Data: Most of the mitigative ideas fielded by the officers included programs already in place;

1. City-wide Weed Abatement Program
2. Additional Wildland Training Programs
3. Disaster Preparedness Planning
4. Mutual and Automatic Aid Agreements
5. Wildland Pre-Fire Plans
6. SOP's regarding Wildland Hose Lays

Research Question #3. What wildland fire training classes need to be provided to all La Habra Heights firefighters?

Question #3 Raw Data: Most of the survey questionnaires returned indicated similar requests for Wildland related Training Classes;

1. All the Federal "S" Classes (Wildland Fire Control Series)

2. All the State (California) "I" Classes (ICS)
3. Command and Size-up Training
4. Structure Protection/Triage
5. Safety
6. Wildland Hose Lays and Hand Tools
7. Instructor Training

There is an old saying; "That if you ask two people the same question, you will get two different answers". I have concluded that saying applies to firefighters as well. Even though the Question asked "What Wildland Training", some people listed things like Swift Water Rescue, or Auto Extrication.

Research Question #4. Are there infrastructure improvements which can be implemented to reduce the overall threat to the community from wildland fires?

Question #4 Raw Data: Nearly every survey questionnaire returned, summed this item with the same three (3) answers; Additional Equipment for the Brush Units, More or Newer Brush Apparatus, and Additional Safety Equipment (Coats & Pants).

In analyzing the information obtained from the Survey Instrument regarding the advantages and/or disadvantages of addressing changes within the LHHFD to mitigate the Wildland Urban/Rural Interface Fire Threat to the City, a majority of respondents indicated very positive advantages. The idea of weed abatement inspections utilizing Engine Companies was highly acclaimed, yet at the same time, firefighters hate doing inspections in general.

The Survey Instrument identified only a handful of disadvantages associated with the Wildland Fire mitigation efforts being implemented by the La Habra Heights Fire Department;

1. Not enough wildland fire training.

2. Communications and training between paid and volunteer firefighters. It is interesting to note that this same comment came from both sides!
3. Better fireground supervision on wildland fires.
4. The need for more safety SOPs and training guidelines.
5. More joint training between other agencies and development of more Automatic/Mutual Aid Agreements.
6. Upgrade Brush Apparatus and purchase additional equipment.
7. More support from City Officials regarding the enforcement of weed abatement violations.
8. Poor radio communications, and the need for more hand held radios.

One very unexpected and disturbing discovery regarding the survey questionnaire that came to light with a large number of the responses; many of those questioned, including Chief Officers and Captains, were very well versed in structural fire control, but felt unsure of themselves when dealing with wildland fires. For the most part, the literature review seemed to confirm the findings of the survey.

DISCUSSION

A major consensus among most LHHFD officers; is that the Powder Canyon area poses the greatest threat to the residents of La Habra Heights, mostly because of the area's heavy fuel load and its interface to area homes. It appeared at first, that because this was a natural wildlife preserve, nothing could be done. However, through recent negotiations between the Conservation Authority, the City Council, and the LHHFD, brush reduction is now under way. The evolution of this change was a welcome sight to most residents of the community, and to the LHHFD.

Lawler (1999) outlined Laguna Beach Fire Department's action to addressing their interface brush problem through both a weed abatement program and a fuel modification

program, by using goats. The LHHFD is investigating this idea further, in that the Conservation Authority is open to this concept in Powder Canyon.

Rubin (1999), listed the 20 costliest fires in U.S. history, four (4) of which, or 20%, were wildland urban interface fires, with three (3) of these occurring in the last 10 years, all in California. The list included; #3 – The Oakland Hills Fire of 1991, #8 – The Laguna Beach Wildfire of 1993, and #19 – The Santa Barbara Wildfire of 1990. My general conclusion from this article; if you live in a rural California community, you must be ready to face wildland interface fires! Fire Chiefs need to be prepared.

Many people think of the Los Angeles County area as one big urban city, and ask why wildland fires are such a problem?

Communities are no longer concentrated in an urban core. As our population continues to grow, homes are being built in what once was uninhabited wildland (Cowardin, 1992, p. 28).

I think it is important that we understand that small communities, sub-divisions, and/or summer home tracts are ill-prepared for a major wildland/urban interface fire, (Perry, 1988, p. 32).

O'Conner (1998), noted the need to address how new homes are built in a rural interface area. Mitigative efforts include; building materials, roofs, clearance around structure, and other fire protection systems. Shack roofs were banned in the City upon incorporation in 1978, and for the last 15 years, all new construction requires full sprinkler systems within.

The introduction of the Risk Assessment Model at the May 1999 NFA class, has assisted in addressing many of the problems, plus producing other improvements at the same time. The use of a "Wildland/Urban/Rural Structure Triage System is another important tool in addressing this problem, (see APPENDIX "D").

In August of 1998, I was selected to attend a special NFA "pilot" ; "Introduction To Wildland and Wildland/Urban Interface Firefighting For The Structural Company Officer" course. I feel that this class should be included as part of the National Fire Academy's week-long Volunteer Incentive Program (VIP). This action would give fire officers from rural communities across the nation, the chance to learn what is required of them in addressing wildland fires. Wildland fire control is a special science of its own, requiring specialized training.

Boucher (1991), noted that largest firefighter loss of life fire, five (5) men, in the history of the Los Angeles County Fire Department, occurred in what is now the City of La Habra Heights, on September 2nd, 1955. The LHHFD takes wildland fire control very seriously, including its training programs.

Two (2) funding alternatives were approved by the La Habra Heights City Council; the first was an agreement with the USDA Forest Service – Angeles National Forest in 1998, which utilizes the joint sharing of resources, with the employment of LHHFD firefighters during major wildland fires on the Forest, and the second is an agreement with the Rancho Community College District, which calls for the joint sharing of student funds for training. The City continues to explore other alternatives.

Infrastructure improvements to reduce the overall threat of wildfire damage to the community included; Radio Communications, Construction of Fire Stations, Water System Upgrades, and Purchase of additional or newer Fire Apparatus/Equipment.

During several of the NFA "Executive Analysis of Fire Service Operations In Emergency Management" class exercises, communications problems kept surfacing.

Miller (1998), also noted fireground radio communications problems during a wildland fire in San Bernardino County, last summer.

Working with the neighboring city of Whittier, the LHHFD is planning to make

improvements to its radio communications system, and provide for a backup in case of failure or frequency crowding.

One of the new proposed changes to the LHHFD, is the building of a new Station #3, in the far northeast section of the City. For now, an old house is leased, at $1.00 a year. The City of La Habra Heights has three fire stations (#1,#3,& #5) within feet, of unincorporated areas, protected by the Los Angeles County Fire Department.

Barden (1998), showed that three California fire agencies built a joint station together. The LHHFD is working with the Los Angeles Co FD to expand on this same idea for the new LHHFD Station #3. This new station will greatly assist in addressing the wildland fire response in Powder Canyon, and the surrounding areas.

Coleman (1999), noted that the California community of Mammoth Lakes made up for a lack of mutual aid assistance by increasing their total number of fire apparatus. Because of our isolated location, the LHHFD has six fire stations, and owns 17 units.

Page (1999), recently noted the first-ever analysis of the potential effects of global climate change on California wildfires. If this reports predictions hold true, most of California should experience major wildland fires during the 1999 Fire Season.

The best thing about the future is that it comes one day at a time (Lincoln, 1999, p. 24).

RECOMMENDATIONS

. The City of La Habra Heights should continue to mitigate the weed hazard, thus reducing the danger of wildfire conflagrations, and meeting an objective established by the City Council and City Manager, at the time of the Fire Chief's appointment in January of 1998.

The La Habra Heights Fire Department should implement the use of the Wildland/Urban/Rural Structure Triage System, displayed in Appendix D as a tool to determine those homes to defend, and those homes for the safety reasons to let burn.

Training should continue to be provided, utilizing cost saving programs such as the National Fire Academy (NFA) or taking advantage of the recently signed agreement with Rancho Community College which provides funding to support local LHHFD training programs. More unique methods such as grants or joint sharing of instructors should be developed further.

Funding alternatives should be investigated regarding cost reductions associated with the implementation of programs and the purchase of equipment necessary to provide adequate fire protection to the City of La Habra Heights. In April of 1999, the City Council supported the passage of two California State Assembly Bills, which would provide additional funding for disaster preparedness and brush hazard reduction.

It should be noted however, that the organizational impact to the La Habra Heights Fire Department, from all the changes being made, will ultimately hinge on the continued support of the City Manager, the long term funding and support of the City Council, plus the backing of the LHHFD firefighters.

Finally, one should consider what President Teddy Roosevelt said in his 1905 inauguration address; "It is hard to fail, but it is worse never to have tried".

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